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PTO/SB/21 (02-04)

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(to be used for all correspondence after initial filing)

Application Number	10/669,959
Filing Date	September 23, 2003
First Named Inventor	Haiyou Wang
Art Unit	Unknown
Examiner Name	Not Assigned
Attorney Docket Number	17462-5

Total Number of Pages in This Submission 155

ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please Identify below): PTO/SB/08A PTO/SB/08B, with 18 non-patent literature documents; return postcard
<div>Remarks</div>		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Henry E. Naylor Kean, Miller, Hawthorne, D'Armond, McCowan & Jarman, L.L.P.		
Signature			
Date			

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Typed or printed name	Henry E. Naylor, #27,461		
Signature		Date	7/15/2004

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IN THE UNITED STATES OF AMERICA
PATENT AND TRADEMARK OFFICE

APPLICANT(S): HAIYOU WANG
R. TERRY K. BAKER

SERIAL NO.: 10/669,959

TITLE: CATALYST FOR THE GENERATION OF CO-FREE
HYDROGEN FROM METHANE

DOCKET NO.: 17462-5

MAIL STOP PATENT APPLICATION
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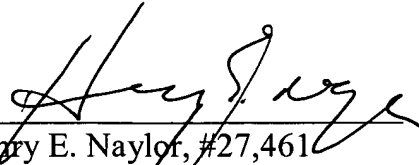
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The following information is submitted pursuant to 37 CFR § 1.97 et seq.

Applicant, through his attorney, submits Form PTO/SB/08A and PTO/SB/08B, which are attached. The patents, publications or other information listed on the attached form are those of which he is aware, which he believes may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

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This information is based upon information supplied by the inventor and
information in the attorney's file.



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Dated: 7/15/2004

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet	1	of	1
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Complete if Known

Application Number	10/669,959
Filing Date	September 23, 2003
First Named Inventor	HAIYOU WANG
Group Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	17462-5

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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Examiner
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¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	10/669,959
		Filing Date	September 23, 2003
		First Named Inventor	Haiyou Wang
		Art Unit	Unknown
		Examiner Name	Unknown
Sheet 1	of 2	Attorney Docket Number	17462-5

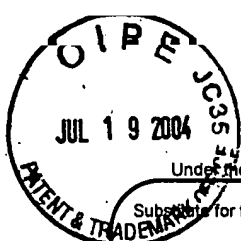
NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	1	P. Chen, H.-B., Zhang, G.-D. Lin, Q. Hong and K.R. Tsai "Growth of Carbon Nanotubes by Catalytic Decomposition of CH ₄ or CO on A Ni-MgO Catalyst", Carbon Vol. 35, No. 10-11, pp. 1495-1501, Great Britain, 1997.	
	2	Sakae Takenaka, Hitoshi Ogiwara, Ichiro Yamanaka, Kiyoshi Otsuka, "Decomposition of methane over supported-Ni catalysts: effects of the supports on the catalytic lifetime", Applied Catalysis A: General 217 (2001) pp. 101-110.	
	3	M.A. Ermakova, D. Yu. Ermakov, G.G. Kuvshinov, and L.M. Plyasova, "New Nickel Catalysts for the Formation of Filamentous Carbon in the reaction of Methane Decomposition", Journal of Catalysis 187, pp. 77-84 (1999).	
	4	M.A. Ermakova, D.Yu. Ermakov, G.G. Kuvshinov, "Effective catalysts for direct cracking of methane to produce hydrogen and filamentous carbon", Applied Catalysis A: General 201 (200) pp. 61-70.	
	5	B. Monnerat, L. Kiwi-Minsker, A. Renken, "Hydrogen production by catalytic cracking of methane over nickel gauze under periodic reactor operation", Chemical Engineering Science 56 (2201) pp. 633-639.	
	6	Nazim Muradov, "Hydrogen via methane decomposition: an application for decarbonization of fossil fuels", International Journal of Hydrogen Energy 26 (2001) pp. 1165-1175.	
	7	M.A. Ermakova, D. Yu. Ermakov, "Ni/SiO ₂ and Fe/SiO ₂ catalysts for production of hydrogen and filamentous carbon via methane decomposition", Catalysis Today 77 (2002) pp. 225-235.	
	8	Bjorn Gaudernack and Steinar Lynum, "Hydrogen from Natural Gas without Release of CO ₂ to the Atmosphere", Int. J. Hydrogen Energy, Vol. 23, No. 12, pp. 1087-1093, 1998.	
	9	T.V. Choudhary, C. Sivadinarayana, C.C. Chusuei, A. Klinghoffer, and D. W. Goodman, "Hydrogen Production via Catalytic Decomposition of Methane", Journal of Catalysis 199, pp. 9-18 (2001).	
	10	M. G. Poirier and C. Sapundzhiev, "Catalytic Decomposition of Natural Gas to Hydrogen for Fuel Cell Applications", Int. J. Hydrogen Energy, Vol. 22, No. 4, pp. 429-433, 1997.	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Complete if Known

Application Number	10/669,959
Filing Date	September 23, 2003
First Named Inventor	Haiyou Wang
Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	17462-5

Sheet	2	of	2
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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	11	Rita Aiello, Jeffrey E. Fiscus, Hans-Conrad zur Loye, Michael D. Amiridis, "Hydrogen production via the direct cracking of methane over Ni/SiO ₂ : catalyst deactivation and regeneration", Applied Catalysis A: General 192 (2000) pp. 227-234	
	12	Lingyu Piao, Yongdan Li, Jiuling Chen, Liu Chang, Jerry Y.S. Lin, "Methane decomposition to carbon nanotubes and hydrogen on an alumina supported nickel aerogel catalyst", Catalysis Today 74 (2002) pp. 145-155.	
	13	T. Ishihara, A. Kawahara, A. Fukunaga, H. Nishiguchi, H. Shinkai, M. Miyaki, and Y. Takita, "CH ₄ Decomposition with a Pd-Ag Hydrogen-Permeating Membrane Reactor for Hydrogen Production at Decreased Temperature", Ind. Eng. Chem. Res. 2002, 41, pp. 3365-3369.	
	14	V. R. Choudhary, S. Banerjee, and A. M. Rajput, "Continuous Production of H ₂ at Low Temperature from Methane Decomposition over Ni-Containing Catalyst Followed by Gasification by Steam of the Carbon on the Catalyst in Two Parallel Reactors Operated in Cyclic Manner, Journal of Catalysts 198, 136-141	
	15	Naresh Shah, Devadas Panjala, and Gerald P. Huffman, "Hydrogen Production by Catalytic Decomposition of Methane", Energy & Fuels 2001, 15, pp. 1528-1534.	
	16	Zongquan Li, Jiuling Chen, Xixiang Zhang, Yongdan Li, Kwok Kwong Fung, "Catalytic synthesized carbon nanostructures from methane using nanocrystalline Ni", Carbon 40 (2002), pp. 409-415.	
	17	Tiejun Zhang, Michael D. Amiridis, "Hydrogen production via the direct cracking of methane over silica-supported nickel catalysts", Applied Catalysis A: General (1998) pp. 161-172.	
	18	Yongdan Li, Jiuling Chen, Yongning Qin, and Liu Chang, "Simultaneous Production of Hydrogen and Nanocarbon from Decomposition of Methane on a Nickel-Based Catalyst", Energy & Fuels 2000, 14, pp. 1188-1194.	

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